with different concentrations (5, 25, 50, 100 μg/ml) and different exposure time (50 μg/ml CRP coincubated for 6, 12, 24 and 48 h). The protein expression of TLR4 was measured by flow cytometry and mRNA expression of TLR4 and MD-2 were tested by quantitative PCR. Measurements of TNFα, IL-6 and MMP-9 in the supernatants of cultured monocytes were performed by ELISA.

Results CRP (5, 25, 50 and 100 μg/ml) increased dose-dependently the expression of TLR4 protein (32.22±2.80%, 49.94±5.58%, 74.82±3.24% and 90.82±2.88%; p<0.005 vs control, respectively). 50 μg/ml CRP stimulated $CD14^+$ monocytes for various times (6, 12, 24 and 48 h) and also increased time-dependently the expression of TLR4 protein (29.80±2.70%, 47.44±4.41%, 81.71±2.92% and 50.57±3.34%; p<0.005 vs control, respectively). CRP (5, 25, 50 and 100 μg/ml) increased dose-dependently the expression of TLR4 mRNA (159%, 211%, 320% and 390%; p<0.005 vs control, respectively) and MD2 mRNA (146%, 236%, 311% and 416%; p<0.005 vs control, respectively). 50 μg/ml CRP stimulated $CD14^+$ monocytes for various times (6, 12, 24 and 48 h) and increased time-dependently the expression of TLR4 mRNA (162%, 264%, 354% and 208%; p<0.005 vs control, respectively) and MD2 mRNA (147%, 241%, 311% and 190%; p<0.005 vs control, respectively). The release of TNFα, IL-6 and MMP-9 in the supernatants of monocytes treated with CRP increased dose-dependently. TLR4 inhibitor of high dose (30μg/ml) could block the release of TNFα, IL-6 and MMP-9 mediated by TLR4 and MD2 upregulated by CRP completely.

Conclusion CRP can active the signal transduction of TLR4 on $CD14^+$ monocyte, and induced the production of TNFα, IL-6 and MMP-9. Our finding illustrates that CRP, as pathogen associated molecular (PAMP), may induce innate immune response in vitro by monocyte Toll-like receptor signalling.

e0110 THE EFFECTS OF ATORVASTATIN ON C-REACTIVE PROTEIN INDUCED TOLL-LIKE RECEPTOR 4 EXPRESSION ON CD14+ MONOCYTE

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Objective To observe the effects of atorvastatin on C-reactive protein (CRP) induced Toll-like receptor 4 expression on $CD14^+$ monocyte in human, and anti-inflammatory effect of atorvastatin.

Methods $CD14^+$ monocytes were isolated from blood in healthy volunteers by the Ficoll density gradient and stimulated by CRP with different concentrations (5, 25, 50, 100 μg/ml) and different exposure time (50 μg/ml CRP coincubated for 6, 12, 24 and 48 h). The protein expression of TLR4 was measured by flow cytometry and mRNA expression of TLR4 and MD-2 were tested by quantitative PCR. Measurements of TNFα, IL-6 and MMP-9 in the supernatants of cultured monocytes were performed by ELISA.

Results CRP (5, 25, 50 and 100 μg/ml) increased dose-dependently the expression of TLR4 protein (32.22±2.80%, 49.94±5.58%, 74.82±3.24% and 90.82±2.88%; p<0.005 vs control, respectively). CRP 50 μg/ml stimulated $CD14^+$ monocytes for various times (6, 12, 24 and 48 h) and also increased time-dependently the expression of TLR4 protein (29.80±2.70%, 47.44±4.41%, 81.71±2.92% and 50.57±3.34%; p<0.005 vs control, respectively). Atorvastatin (1.0, 2.5, 5.0, 7.5 and 10 μmol/l) inhibited dose-dependently the expression of TLR4 protein induced by CRP 50 μg/ml for 24 h [68.17%, 52.43%, 27.72%, 17.46% and 9.99%; p<0.005 vs control (80.39%), respectively], and restrained dose-dependently the expression of TLR4 mRNA (p<0.005 vs control, respectively) and MD2 mRNA (p<0.005 vs control, respectively). The release of TNFα, IL-6 and MMP-9 in the supernatants of monocytes treated with CRP 50 μg/ml was inhibited dose-dependently by atorvastatin. Atorvastatin 10 μmol/l inhibited mostly the release of TNFα, IL-6 and MMP-9 in the supernatants of monocytes treated with CRP 50 μg/ml (24%, 22.6% and 15.6%, p<0.005 vs baseline, respectively).

Conclusion CRP can increase dose-dependently and time-dependently the expression of TLR4 on $CD14^+$ monocyte in human, and the production of TNFα, IL-6 and MMP-9 in $CD14^+$ monocyte. Atorvastatin can inhibit dose-dependently the expression of TLR4 mRNA and protein induced by CRP and the release of TNFα, IL-6 and MMP-9 in $CD14^+$ monocytes in human. Atorvastatin has anti-inflammatory effects and may restrain innate immune response in vitro by inhibition of monocyte Toll-like receptor signalling.

e0111 ASSOCIATION BETWEEN MYELOPEROXIDASE -463 G/A GENE POLYMORPHISM AND ITS PLASMA LEVELS WITH RISK OF CORONARY ARTERY DISEASE IN CHINESE POPULATION

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Objective The aim of this study was to investigate whether myeloperoxidase gene polymorphism and its plasma levels were associated with risk of coronary artery disease (CAD) in Chinese population.

Methods A case-control study was conducted in Fujian provincial hosipital, 157 patients with established CAD (cases) and 78 individuals without angiographically significant CAD (controls) were enrolled. Blood samples were collected to identify the MPO polymorphism and its plasma levels.

Results Genotypes were determined in all individuals. The frequencies of three genotypes were significantly different in both group (p<0.05). Plasma MPO levels were significantly greater in patients with CAD than in controls (332.05±167.56 pg/ml vs 277.81±142.68 pg/ml, p<0.05). In the case group, 7(4.5%) were homozygous for AA, 101(64.3%) for GG and 49(31.2%) were heterozygous. Mean MPO plasma levels were 200.10±31.47 pg/ml for AA, 297.43±125.28 pg/ml for AG and 367.66±177.14 pg/ml for GG genotypes. In the case group, the MPO levels with GG were significantly higher than that in individuals with GA(p<0.05) and AA(p<0.05), but with no difference between GA and AA genotype (p>0.05). Plasma MPO levels correlated with its genotype.

Conclusion We found association between MPO polymerase and its plasma levels with CAD risk in Chinese population. These findings provide new sights for atherosclerosis diagnosis and risk assessment.

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e0112 STUDY OF MYELOPEROXIDASE LEVEL AND CD11B/CD18 EXPRESSIONS ON LEUKOCYTES IN PATIENTS WITH CORONARY HEART DISEASE

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Objective Myeloperoxidase (MPO) and CD11b/CD18, markers of leukocyte activation, are involved in the pathogenesis of atherosclerosis. The aim of the study was to investigate the plasma MPO level and CD11b/CD18 expressions on leukocytes in patients with coronary heart disease (CHD).

Methods This case-control study included 157 patients with angiographically proven CHD (cases). Controls included 78 subjects with normal coronary angiograms. MPO was measured using an

enzyme immunoassay. The method of immunofluorescence flow cytometry was performed for measuring CD11b/CD18 expression on leukocytes in all subjects. High sensitivity- Creactive protein (hs-CRP), WBC and PMN were also measured and analysed.

Results Plasma level of MPO in CHD group was much higher than that in controls [(332.05±167.56) pg/ml vs (277.81±142.68) pg/ml, p<0.05]. CD11b/CD18 level differed significantly between CHD group and control group [(53.7±24.1) vs (23.0±10.2), p<0.01]. The levels of hs-CRP and WBC were markedly increased in cases than those in controls (p<0.05–0.01). MPO levels correlated positively with CD11b/CD18 and WBC levels (r=0.539, p<0.01and r=0.3, p<0.05, respectively), but had no significant correlation with CRP, TC, TG, LDL, HDL, IMA, cTnI.

Conclusion In conclusion, the levels of MPO, CD11b/CD18, hs-CRP and WBC are elevated in patients with CHD. Inflammation may be one of important reasons for ACS occurrence and MPO, leukocytes and their CD11b/CD18 expressions and hs-CRP were involved in the occurrence of ACS together. MPO may be an inflammation marker independent of hs-CRP.

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e0113 EFFECTS OF CAPTOPRIL ON MYOCARDIAL ENERGY METABOLISM IN CHRONIC PRESSURE OVERLOAD RATS

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Objective To investigate the effect of Captopril on cardiac function and levels of energy-rich phosphates in pressure overload induced left ventricular hypertrophy rats.

Methods Totally, 120 SD rats were randomly divided into three groups: sham operation group (SH) (n=40), coarctation of abdominal aorta group (CAA) (n=40) and Captopril group (CAP) (n=40). Parameters of cardiac function, levels of energy-rich phosphates and morphological changes of the myocardial mitochondria were observed at the 6^{th} and 8^{th} week after this therapy.

Results 1. At 6^{th} week, in CAA group, the cardiac function parameters (LVMI and LVEDP) were increased and $\pm dp/dt_{max}$ was decreased, while ATP and ADP were decreased and AMP was increased (p<0.01). These changes were much obvious at 8^{th} week (p<0.01). 2. Compared with that of CAA group, the parameters of heart function and energy-rich phosphates (ATP, ADP, AMP, TAN) in CAP group were improved significantly (p<0.01) at the 6^{th} and 8^{th} week. 3. In CAP group, the parameters of heart function and energy-rich phosphates (ADP, AMP, TAN) were much better at 8^{th} week than that of 6^{th} week. 4. The morphological change of mitochondria was less in CAP group than that in CAA group.

Conclusion Captopril can significantly improve the myocardial energy metabolism in pressure overload rats and can protect the function of myocardial mitochondria.

e0114 EXPRESSION OF PREGNANCY-ASSOCIATION PLASMA PROTEIN A AND INDUCIBLE NITRIC OXIDE SYNTHASE IN THE WALL OF BALLOON INJURED AND EARLY ATHEROSCLEROTIC PORCINE CORONARY ARTERY

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Purpose To investigate the role of pregnancy-associated plasma protein A (PAPP-A), a novel marker of atherosclerotic plaque activity, in the progress of injured-restenosis and atherosclerosis, and the relationship between the expression of PAPP-A and inducible nitric oxide synthase (iNOS) in the wall of coronary artery.

Methods The balloon injury procedure was done in the coronary arteries of 5 male pigs (injury group), and the artery segments were harvested in 28d after balloon injury. The expression of PAPP-A and iNOS were detected in the wall of coronary arteries by the means of immunohistochemical study and reverse transcription-polymerase chain raction. Expression of PAPP-A and iNOS were also detected in coronary artery wall of four pigs fed a high-cholesterol atherogenic diet for 15 weeks (CHOL group).

Results A marked increase in PAPP-A-positive cell number of the injury group was seen compared with the CHOL group, both in medial smooth muscle cells (PAPP-A staining: 33.2±2.9 vs 5.5±2.8, p<0.05) and neointimal (intimal) cells (PAPP-A staining: 28.3±3.1 vs 3.8±2.4, p<0.05); while iNOS-positive cell number decrease, only in neointimal (intimal) cells (iNOS stain: 1.1±0.3 vs 18.4±4.2, p<0.01). The expression of PAPP-A mRNA was higher in the injury group, compared with the CHOL group (0.81±0.08 vs 0.54±0.13, p<0.05), but nearly no expression in "normal" control vessel segements (0.03±0.01); while iNOS mRNA was lower in the injury group (0.18±0.09 vs 0.62±0.13, p<0.05).

Conclusion PAPP-A plays role in the progress of early atherosclerotic lesions and restenostic lesions.

e0115 OVEREXPRESSION AND INHIBITION OF CAMK2D GENE IN PRIMARY MYOCARDIAL CELLS BY LENTIVIRUS

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Purpose It has been found that Camk2d (calcium/calmodulin dependent protein kinase II delta) is related to E-C couple and myocardial hypertrophy and heart failure in pathological states. Moreover, its function alteration may play some role in arrhythmia. To further investigate the mechanism of Camk2d in onset and development of arrhythmia, we have built a platform for next stage by overexpressing Camk2d in myocardial cells by lentivirus transduction and inhibiting it by RNAi. Method (1) Rat Camk2d ORF was cloned by PCR, ligated into lentivirus vector and then packaged into lentivirus particles. (2) 3 shRNA sequences against Camk2d were designed and cloned. The one with highest inference efficiency was then screened by westernblot following with calcium phosphate transfection on 293 cells. (3) The selected RNAi clone was packaged into lentivirus particles. (4) Cultured myocardial cells from neonatal rats were transducted with overexpression or RNAi lentivirus and harvested for analysing Camk2d level by Realtime-PCR and westernblot.

Result Myocardial cells transducted by overexpression lentivirus exhibited an over 5-time higher level of Camk2d than normal, while in RNAi transfected cells, expression of Camk2d decreased by around 50%.

Conclusion Lentivirus can efficiently transduct primary myocardial cells with exogenous genes to obtain cells with special gene up- or down-regulated.

e0116 THE CARDIOPROTECTIVE EFFECT OF ISCHAEMIC PRECONDITIONING AND THE EXPRESSION OF ADIPONECTIN IN RAT MYOCARDIAL ISCHAEMIC PRECONDITIONING MODEL

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Background A number of recent studies have reported the protective effect on ischaemic myocardial by ischaemic preconditioning (IPC)